DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE:

MLP00-0307-00(008), Chatham County

OFFICE: Engineering Services

P.I. No.: 562165

SR 307 / Dean Forest Road

DATE: April 28, 2009

REW

FROM:

Ronald E. Wishon, State Project Review Engineer

TO:

James B. Buchan, P.E., State Urban Design Engineer

Attention: Albert Welch

SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES

Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. Incorporate alternatives recommended for implementation to the extent reasonable in the design of the project.

ALT No.	Description	Savings PW & LCC	Implement	Comments
		ROADWA	Y	
C-3	Use only Asphaltic Concrete pavement instead of the combination of ACP, PPC Concrete Pavement and HES Concrete Pavement.	\$298,310	No	The twenty four hour truck percentage for this project is 62%. This high truck percentage causes a higher predicted design period load, which requires a stronger pavement design to support it. The ACP pavement design proposed by the VE team meets design criteria, however it will require more maintenance over time (see attached 30-yeay Life Cycle Cost Analysis). PCC's life cycle cost is \$34,000 while ACP's is \$624,000. This difference results in a total savings of \$1,053,000 for construction and maintenance by using PCC over the 30-year period.

MLP00-0307-00(008), Chatham County P. I. No.: 562165

VE Study Implementation

Page 2.

	R	OADWAY Con	tinued	
G-1	Do not construct sidewalk along the corridor, but only at the intersections with Commerce/Export Blvd. and SR 21, to provide for ramps. Sidewalk at these intersections is recommended to be 4" thick.	\$458,986	Yes	No sidewalks currently exist along any section of SR 307. This project is in an industrial / commercial area with very little pedestrian traffic as noted by the lack of pathways along the shoulder. The closest residentia area is one half mile south of the SR 307/SR 21 intersection at Doyle Street.
K-1	Reduce the lane widths form 12-feet to 11-feet. Maintain the 14-foot median width in lieu of the proposed 20-foot from STA. 18+60 to 72+64.	\$859,858	No	The project's base year (2010) ADT is 18,900 and design year (2030) ADT is 27,600, thus the traffic volumes warrant the raised median. Although the corridor does not currently have a raised median, the proposed typical section matches two nearby project along SR 307. SR 307 over the new Port Authority Rail Line, located 0.34 mile to the east, proposes 20-foot raised median and is currently in final design. Jimm Deloach Parkway extension proposes to be a limited access facility with a 24-foot raised median with ramp termini at the intersection of SR 307 and is in the concept phase. The recommendation for narrowing the lane widths from 12-feet to 11-feet requires a design variance. AASHTO 2004 for urban collectors states, "In industrial areas, lanes should be 12-feet wide" and "turning land at intersections should range from 10 to 12-feet depending of the percentage of trucks." (Pa 433). This project is in a heavindustrial area with a truck percentage of 62%. Changes the typical section will incur significant redesign costs and will delay the project schedule.

MLP00-0307-00(008), Chatham County P. I. No.: 562165 **VE Study Implementation** Page 3.

The Office of Engineering Services concurs with the Project Manager's responses.

Approved:

Gerald M. Ross, P. E., Chief Engineer

REW/DMF

Attachments

c: Genetha Rice-Singleton

Ben Buchan

Darrell Richardson

Butch Welch

Paul Liles

Bill Ingalsbe

Bill DuVall

Will Murphy

Ken Werho

Lisa Myers

Douglas Fadool

General Files

VE Team:

Chuck Hasty

Jeremy Busby

Clay Bastian

Cynthia Burney

Doug Franks

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

INTERDEPARTMENTAL CORRESPONDENCE

FILE

MLP00-0307-00(008), Chatham County

OFFICE

Urban Design

SR307/Dean Forest Road

From Robert B. Miller Rd to SR 21

P. I. No. 562165

DATE

April 22, 2009

FROM

James B. Buchan, P.E., State Urban Design Engineer

TO

Ron Wishon, State Project Review Engineer

Attention: Lisa Myers

SUBJECT Value Engineering Study - Responses

Reference is made to the recommendations that were contained in the Value Engineering Study – Final Report dated March 11, 2009 for the above referenced project. Responses and recommendations are as follows:

1. Value Engineering Alternative C-3: Use only Asphaltic Concrete Pavement (ACP) instead of the combination of ACP, Portland Cement Concrete (PCC) and High Early Strength (HES) Concrete Pavement - Not Recommended

This alternative is not recommended for implementation due to the following reasons:

- The twenty-four hour truck percentage for this project is 62%. This high truck percentage
 causes a higher predicted design period load, which requires a stronger pavement design to
 support it.
- The ACP pavement design proposed by the VE team meets design criteria, however it will
 require more maintenance over time (see attached 30-year Life Cycle Cost Analysis). PCC's
 life cycle cost is \$34,000 while ACP's is \$624,000. This difference results in a total savings
 of \$1,053,000 for construction and maintenance by using PCC over the 30 year period.
- 2. Value Engineering Alternative G-1: It is recommended that sidewalk is not constructed along the corridor, but only at the intersections with Commerce/Export Blvd and SR21, to provide for ramps Recommended

This alternative is recommended for implementation due to the following reasons:

No sidewalks currently exist along any section of SR307.

P.I. No. 562165 V.E. Responses Page 2

• This project is an industrial/commercial area with very little pedestrian traffic as noted by the lack of pathways along the roadway shoulder. The closest residential area is ½ mile south of the SR307/SR21 intersection at Doyle Street.

3. Value Engineering Alternative K-1: Flush Median - Not Recommended

This alternative is not recommended for implementation due to the following reasons:

- The VE Team proposes to replace the 20-ft raised median with a 14-ft flush median. GDOT's Design Manual specifies using a 20-ft raised median for base year Average Daily Traffic (ADT) over 18,000 and design year ADTs over 24,000. The project's base year (2010) ADT is 18,900 and design year (2030) ADT is 27,600. Thus the traffic volumes warrant the raised median. The twenty-four hour truck percentage for this project is 62%.
- Although the corridor does not currently have a raised median, the proposed typical section matches the proposed typical section of two nearby projects along SR307. P.I. No. 0000345, SR307 over the new Ports Authority Rail Line, located 0.34 mile to the east, proposes a 20-ft raised median and is currently in the final design stage. P.I. No. 0008690, Jimmy Deloach Pkwy extension, proposes to be a limited access facility with a 24-ft raised median with ramp termini at the intersection of SR307 and is currently in concept phase.
- The recommendation for narrowing the lane widths from 12-ft to 11-ft requires a design variance. The AASHTO Policy on Geometric Design of Highways and Streets (2004) for urban collectors states, "In industrial areas, lanes should be 12-ft wide" and "turning lanes at intersections should range from 10 to 12-ft depending on percentage of trucks." (Page 433). This project is in a heavy industrial area with a truck percentage of 62%.

 Changes to the typical section will incur significant redesign costs and will delay the project schedule.

JBB:ASW:amr

Attachments

Life Cycle Cost Analysis (LCCA) Cost Worksheet

Life Cycle Cost Analysis - Present Value Discount Factor: Single future Payment Future Cost Calculation

Project: 562165

Creative Idea No. C-3

Discount Rate: 4%

Analysis Period: 30 years

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